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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,349	03/01/2004	Mark D. Kuehn	K21-001	9379
7590	10/18/2005		EXAMINER MAI, ANH T	
R. Neil Sudol 714 Colorado Avenue Bridgeport, CT 06605-1601			ART UNIT 2832	PAPER NUMBER
DATE MAILED: 10/18/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/790,349

Applicant(s)

KUEHN, MARK D.

Examiner

Anh T. Mai

Art Unit

2832

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glass Expansion [prior art admitted by applicant] in view of Otte [3913444].

Glass Expansion discloses a copper coil electroplated with a layer of silver and then a layer of gold [specification, page 2, line 18].

Glass Expansion discloses the claimed invention except for inner layer of transition metal coating said tube.

Otte, however, discloses inner tube 10 of an alloy of nickel [transition metal], which is different from noble metal [gold]; see figures 1-3 and column 3, lines 38-43.

Because Glass Expansion and Otte are both from the same field of endeavor, nickel coating the inner layer of copper tube as disclosed by Otte would have been recognized as an art pertinent art of Glass Expansion.

It would have been obvious, therefore, at the time the invention was made to a person having skill in the art to construct the copper coil, such as the one disclosed by Glass Expansion, with an additional nickel coating on the inner layer, such as disclosed by Otte for the purpose exhibiting characteristics of different physical properties at different temperatures [column 3, lines 25-29].

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With respect to claim 10, Nickel is considered material for at least substantially impeding a migration of copper as disclosed by applicant in the specification.

3. Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glass Expansion [prior art admitted by applicant] in view of Otte as applied in claims 1-4 above, and further in view of Romano et al. [4919291].

Glass Expansion and Otte disclose the claimed invention except for the pure gold on the layer.

Romano, however, discloses tube comprised of copper flashed with nicked coating and then plated with 99.9 gold [pure gold]; see column 3, lines 37-41.

Because Glass Expansion, Otte and Romano are from the same field of endeavor, pure gold coating layer on copper tube as disclosed by Romano would have been recognized as an art pertinent art of Glass Expansion in view of Otte.

It would have been obvious, therefore, at the time the invention was made to a person having skill in the art to construct the copper coil, such as the one disclosed by Glass Expansion in view of Otte, with an pure gold material, such as disclosed by Romano for the purpose of pure gold coating to copper and nickel to yield an oxidation and corrosion resistant surface [col 1, lines 60-62].

With respect to claims 7-9, Glass Expansion, Otte and Romano disclose the claimed invention except for the thickness of the coating layers. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have thickness of the inner layer and outer layer of 1000 microns and 10 microns respectively, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

*In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

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*Conclusion*

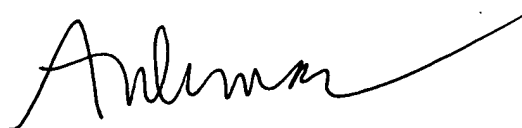
4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Vinegar discloses a relatively diffusion layer, nickel, may inhibit migration of copper into other layers of the heater including insulation layer [para 688].

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh T. Mai whose telephone number is 571-272-1995. The examiner can normally be reached on 5/4/9 Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on 571-272-1990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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**ANH MAI  
PRIMARY EXAMINER**